

The Identification Process Deconstructed

NIST Smart Card Workshop
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The Issue

- ❑ Is Identification a Policy Problem or a Technology Problem
- ❑ The Answer is It's Both
- ❑ Challenge is Understanding What is Policy and What is Technology
- ❑ To Facilitate that Process We Recommend "Deconstructing the Identification Process"

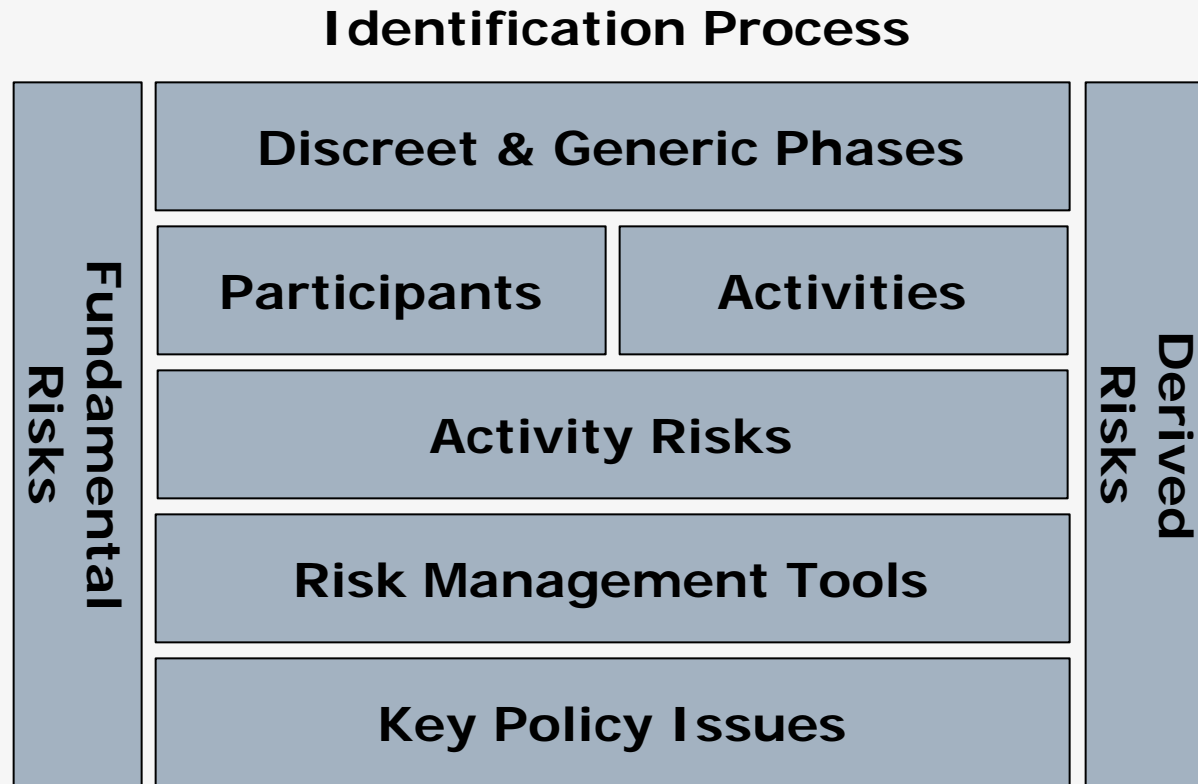
Basic Assumptions

- ❑ Identification Process Can be Broken Down into Discreet & Generic Phases
- ❑ Three Principal Participants in the Process: Subject, Credentialing Authority, & Relying Party
- ❑ Participants Perform Different Activities Based upon Their Roles in Process

Basic Assumptions cont'd

- Identification Process Carries **Three Types of Risk**: Fundamental Risk, Activity Risk, and Derived Risk
- **Finite Set of Risk Management Tools** Available to the Participants
- **Limited Number of Key Issues** Determine Overall Viability of Identification Process or Scheme

Holistic View of the Identification Process



The Principal Participants

- Subject
 - Individual or Object Wishing or Required to be Identified
- Credentialing Authority (CA):
 - Trusted Organization Responsible for Identity Proofing of Subject and Issuing Identity Credential
- Relying Party (RP)
 - Organization Wishing to Identify Individual or Object

Generic Phases of the Identification Process

1. Identity **Proofing** by Credentialing Authority
2. **Creation** of Identity Credential
3. **Presentation** of Identity Credential to Relying Party
4. **Acceptance** of Credential by Relying Party

Phase One: Identity Proofing by Credentialing Authority (CA)

□ Principal Activities in Phase One

- Application by Subject
- Investigation of Subject by CA
- Identity Assertion about Subject by CA
- In Closed System CA May also Provision Subject's Domain Rights & Privileges

Phase Two: Creation of Identity Credential

□ Principal Activities in Phase Two

■ “Packaging” of Identity Assertion into Identity Credential

□ Key Decision Re: Form Factor of Credential

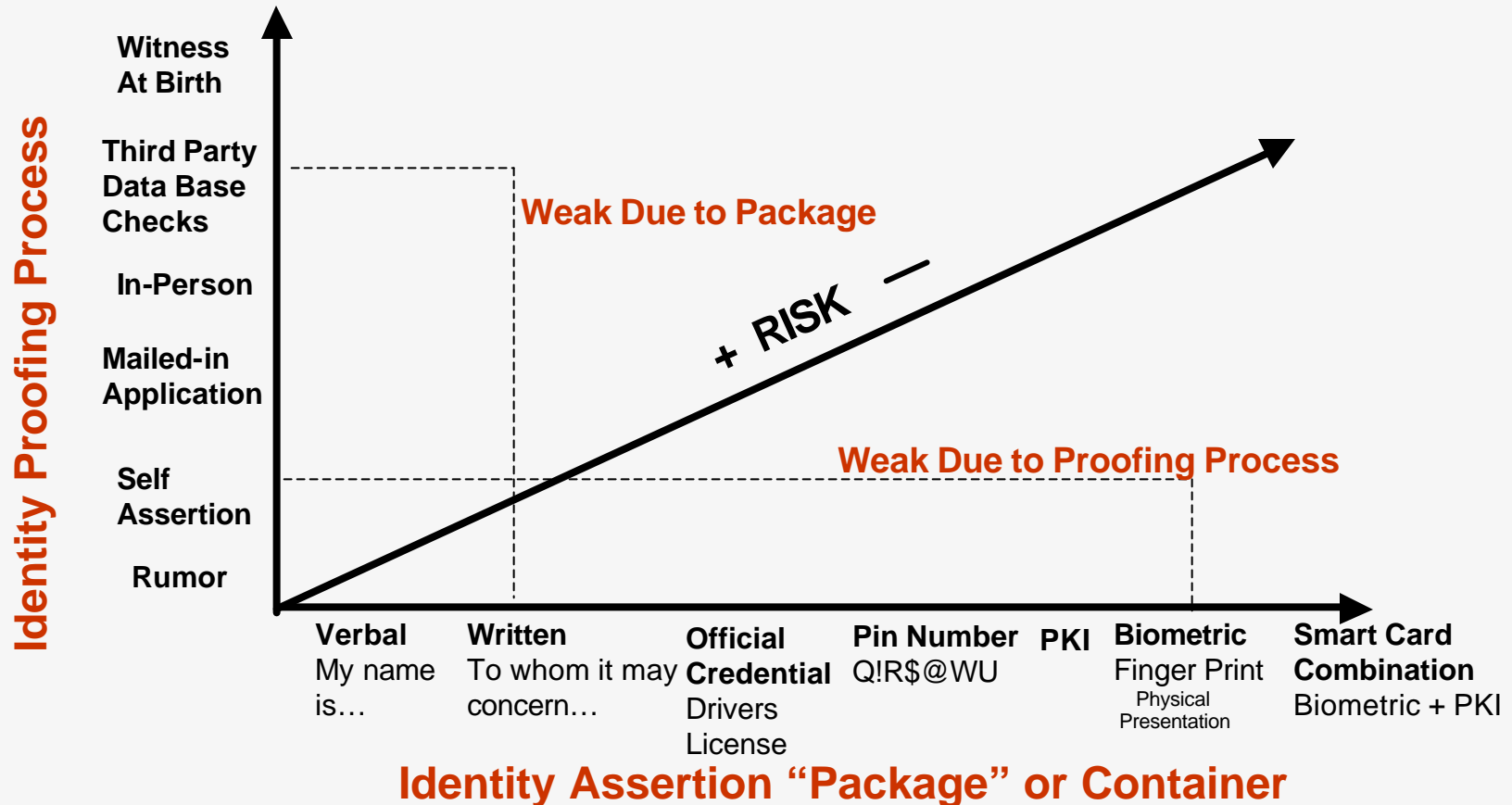
- Password, Smart Card, Digital Certificate, etc.

□ N.B. Credential is Symbol of CA's Identity Assertion about Subject; Credential is Not Necessarily Subject's Identity

- e.g. Flag is Symbol of Freedom; Flag is not Freedom

■ Delivery of Identity Credential to Subject

Identity Assurance is a Function of the **Combination** of the Strength or Rigor of the Identity Proofing Process and the Strength or Security of the Identity Assertion “Package” or Container



Critical Decisions Facing Credentialing Authority

- Level of Rigor Employed in Identity Proofing Process
- Form Factor for Identity Credential
 - E.g. Password, Digital Certificate, Biometric, Smart Card

Phase Three: Presentation of Identity Credential to Relying Party

□ Principal Activities in Phase Three

- Transportation of Credential to Relying Party
- Presentation of Credential to Relying Party

Phase Four: Acceptance of Credential by Relying Party

□ Principal Activities in Phase Four

- Prove Subject's Ownership of Identity Credential
 - Primary Function of Biometrics
- Authenticate Credential (Not Counterfeit)
- Validate Credential (Current/Use)
- Acceptance of Credential
- In Open System RP May Provision Subject's "Domain Specific" Rights & Privileges

Critical Decisions Facing Relying Party

- ☐ Whose Identity Credentials will be Accepted & Why
- ☐ What Form Factor will be Required

Types of Risk in Identity Process

□ Fundamental Risks

- Risks Associated with **Participant's Role** in Identification Process

□ Activity Risks

- Risks Associated with **Activities Performed by Participants** in Identification Process

□ Derived Risks

- Consequential Risks Resulting from Realization of Activity Risk and/or Fundamental Risks

Examples of Fundamental Risks

- Credentialing Authority
 - Misidentify Subject
- Subject
 - Identity Theft
- Relying Party
 - Unauthorized Subject Granted Access

Examples of Activity Risks

- ❑ Data Lost, Stolen, or Tampered with During Application, Identity Proofing, and/or Storage
- ❑ Data Lost, Stolen, or Tampered with in Transit to Relying Party
- ❑ Data Lost, Stolen, or Tampered with During Proof of Ownership, Authentication, and/or Validation Process

Examples of Derived Risks

☐ Reputation Risk

- Resulting from Mis-identification (CA) or Unauthorized Access (RP)

☐ Financial Risk

- Consequential damages from Mis-identification (CA) or Unauthorized Access (RP)

Outsourcing Activities

- ❑ RPs and CAs may elect to outsource the performance of various activities related to their role in the identification process.
- ❑ Outsourcing may increase both fundamental risks and activity risks as it may introduce additional management requirements on the participants and technological complexity into the process.
- ❑ Outsourcing activities does not create new phases; it sub-divides the four generic phases.

Technology-Based Sources of Activity Risks *

- ☐ Data Collection
- ☐ Data Communication
- ☐ Data Processing
- ☐ Data Storage and Retrieval

* In all cases the risk is that data is lost, stolen, or tampered with.

Primary Risk Management Tools

- ☐ Policies, Procedures & Controls
- ☐ Technology
- ☐ Security Assessment
- ☐ Audit

Key Issues in Determining Viability Identification Process

- ❑ Who Can/Will be Trusted as CA
- ❑ Required Degree of Certainty in Identification Process
- ❑ RP's Need for Recourse to CA; CA's Willingness to Accept Liability
- ❑ Security, Complexity, and Scalability of Implementation
- ❑ Process Cost and Ease of Use

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